
**Critical Infrastructure Failure and Mass
Population Response: what is the nature of
collaboration in this field?**

Sandcastle Report

February 7th 2014

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Executive summary

The aim of this Sandcastle event was to bring together academics, practitioners and policy makers working in the broad field of 'Critical Infrastructure Failure and Mass Population Response', to debate the nature of working in this field. The event was part of an Economic and Social Research Council funded project entitled 'Mass population response to critical infrastructure collapse - a comparative approach' (2012-15), directed by John Preston of the University of East London, which examines how governments prepare citizens for collapse in the Critical National Infrastructure and how they model collapse and population response. Participants debated the following questions, with a focus on the UK context:

- What are the barriers to collaboration in this field?
- How can we work critically in this field?
- How can we foster interdisciplinary working?
- How can we improve collaboration?

Although there is a willingness to work collaboratively in the field in the UK, participants identified the following barriers to collaboration:

1. A significant barrier was both the lack or reduction of funding in the field, and the fact that the tranches of funding available are too large for some organizations to be able to apply for.
2. Location: there is a tendency to work with those geographically closest.
3. Lack of opportunity to collaborate.
4. Communication difficulties, including terminology and language barriers.
5. Academic pressures.

Participants identified the following barriers to critical working in the field:

1. Academic processes such as the REF impact agenda and the difficulty of getting 'bad news stories' published in academic journals.

2. Security and trust issues around data sharing.
3. Funding often depends on the applicant's funding track record rather than good or innovative ideas.
4. The slow pace of funding application and publication processes, meaning the field may have moved on by the time funding is granted or publications appear.
5. A lack of opportunity for learning across sectors.
6. A lack of space to make controversial statements.

Participants considered the following recommendations to foster interdisciplinary working in the field:

1. Funding should specifically target interdisciplinary groups
2. More networking events and which encourage collaboration.
3. Academic monitoring processes such as the REF should reward interdisciplinary working.

Several steps were identified as important to achieving the group's vision of better collaboration in the field.

1. The creation of a national forum for resilience bringing practitioners and researchers together
2. An exchange scheme between universities and the Emergency Planning College.
3. Improved data sharing.
4. The creation of a supportive secondment system for researchers between sectors, including policy, business, academia and the third sector.
5. Put working collaboratively in job descriptions.

The following challenges to achieving this vision were identified:

1. Data is often difficult for non-specialists to interpret.
2. Issues around data protection and what information can be communicated to the public.
3. Tensions between the public and private sectors.
4. Academic pressures.

5. The withdrawal of support for infrastructure projects from external funders.

The main areas of support thought to be important in achieving the vision include:

1. More networking events which encourage collaboration rather than competition.
2. More collaborative funding.
3. More funding for students attached to existing projects and areas of ongoing research.

Introduction

This sandcastle event was held as part of the ESRC funded project entitled “Mass population response to critical infrastructure protection: A comparative approach” (2012-2015) led by Professor John Preston, an ESRC Global Uncertainties Leadership Fellow (2012-2015) following similar, successful, sandcastle events held by the research team in the US, Japan and Germany. The project examines how governments prepare citizens for collapse in the Critical National Infrastructure, how they model collapse and population response, and the globalization of CNI policy, with particular reference to education, health and social justice. The aim of the Sandcastle event was to bring together scientists and social scientists, practitioners and policy makers, to look at how this field is organized in the UK, and how better collaborations could be achieved.

Academics, practitioners and policy makers working broadly in the field of critical infrastructure protection and mass population response were invited to participate in this one day event to debate the following specific questions, with a focus on the UK context:

- What are the barriers to collaborating in this field?
- How can we work critically in this field?
- How can we foster interdisciplinary working?
- How can we improve collaboration?

Working in the field of Critical Infrastructure Failure and Mass Population Response in the UK.

What are the barriers to working collaboratively in this field in the UK?

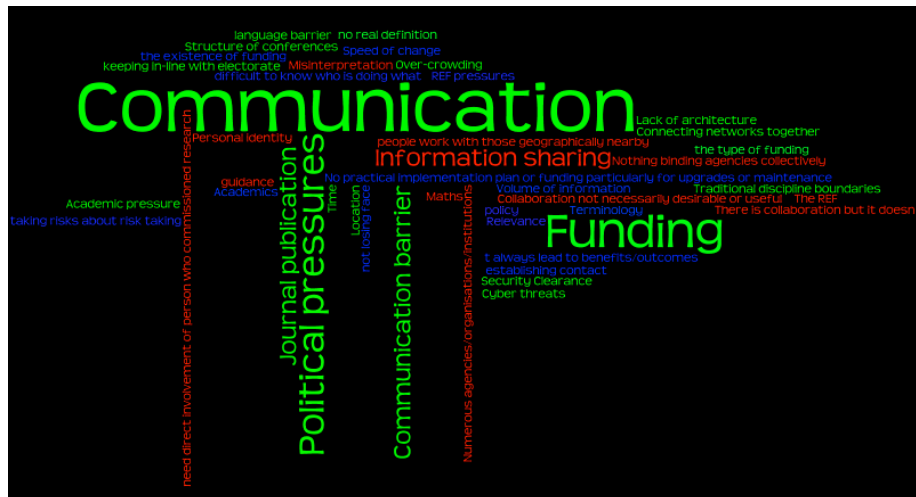


Figure 1: This shows the key points discussed as being barriers to collaborative working in the field. The larger the font, the more times the point came up in discussions and as such the more important the point is.

Whilst there seems to be a willingness to collaborate, participants felt there are currently many barriers to collaborative working within the field of Critical Infrastructure Protection and Mass Population Response.

There was a feeling that there may be over-crowding in the field and a “lack of architecture” in that it is difficult to know who is doing what. It is felt that there are issues with the volume of information and that there is no clear definition of information sharing. Location also plays a part in this, in as much as it is felt that people generally work with those who are geographically nearby and less with those who are located far away, but with whom they may have much to collaborate on. Working “horizontally” across disciplines (academics, policy makers & practitioners) rather than vertically (academics in different disciplines) is felt to be desirable; however there remain numerous agencies, organizations and institutions which present barriers to this being achievable.

Participants also felt that there is a lack of opportunity for fostering this collaboration. Academic conferences are structured in such a way that largely they are attended by academics, therefore not crossing the disciplines horizontally, but also that the time spent at conferences allows more for seemingly surface networking rather than a deeper level of networking and collaboration. Furthermore attendance at conferences involves some requirement for funding which in itself can be a barrier.

Equally, the Research Excellence Framework (REF) places particular importance on international connections, which was seen by some as encouraging academics to neglect local connections.

This Sandcastle event therefore had a big impact on many participants because its nature and structure allowed for collaborative discussions and thinking across disciplines both horizontally and vertically, and also brought together academics, policy makers and practitioners who may well not have had that opportunity for collaboration, particularly in such depth, before.

Funding

Funding is a significant barrier, on many levels, to collaborative working within the field. In part this is felt to be due to the reduction in funding from the larger funding bodies in the near future. Additionally the type of funding that is available presents a barrier in itself in a number of ways. For example, issues with security clearance can in some cases present barriers to being able to research areas of great importance, and the speed of change within the sector means that the process of applying for funding and receiving the funding can mean the field has moved on before completion of the project.

It is also felt that there is no practical implementation plan or funding for upgrades or maintenance in relation to the research in the field. Participants felt that a track record of securing funding, rather than a project idea, was frequently the most important factor in successful project proposals. This

appears both to prevent more academics from entering the field, and/or working collaboratively across disciplines.

Similarly, chunks of funding are seen to be too big in some cases and as such require a large project proposal with a number of work packages within it. This is seen as an issue, as many proposals that do not get funded may well have work packages within them that in themselves would be funded, however because the funding is so large they get rejected as a whole project.

Participants suggested that a solution to this could be that the work packages within larger bids that are seen to be in themselves valuable and fundable, should be funded as stand alone smaller projects rather than being rejected as a whole. Additionally it was suggested that there could be some mechanism that placed such work packages together with others from larger bids to create a new project, to prevent these important work packages from being lost.

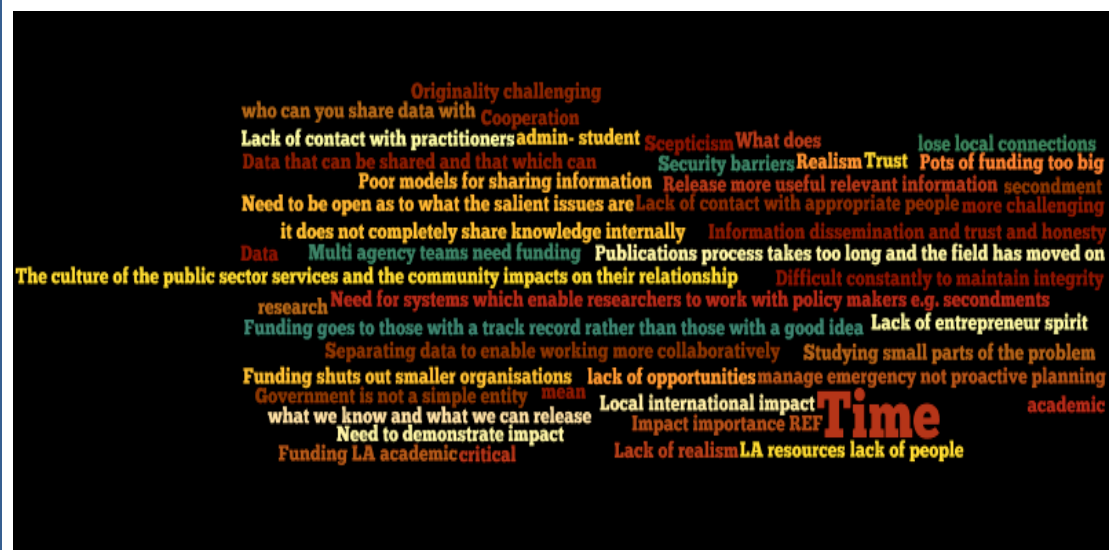
Communication

Communication has been identified as quite a significant barrier to collaborative working in the field. Firstly there are issues with establishing contact with other academics, agencies and institutions who work in the area. As mentioned above, one of the contributing factors to establishing contact is the lack of networking opportunities that bring together all who work in the field. It is recognized that there are pockets of small networks around, however participants felt that there is a lack of opportunities to connect these networks together.

Secondly, terminology can present a barrier to communication between both individuals from different disciplines or between different sectors: academics, policy makers and practitioners employ different terminology to express similar ideas. Thirdly, participants pointed out that there are language barriers when working with people for whom English is a second language.

Academic pressures were identified as barriers to collaboration, and it was pointed out that many of these pressures are equally felt by non-academic professionals in the field. Time presents a major barrier, as many academics have several roles to juggle including teaching and supervision, administration, conference and seminar attendance, applying for funding, research and publication.

How can we work critically in this field in the UK?



The question on criticality was the most difficult to define. As academics, we tend to understand criticality as involving an analysis of both merits and faults. However, some participants from different sectors understood criticality as enabling others to appreciate the importance of their work. In this section, we discuss both understandings of the term.

For academics, the REF impact agenda was thought to contribute to the loss of criticality in that in placing such importance on 'measurable' impact, which is mainly achieved when academics are in agreement with policy makers. This narrows the possibility for critique.

Journal publications can also produce their own difficulties in that it is felt to be difficult to publish articles with negative results, and as such this acts as a barrier to criticality.

For all participants, issues with data sharing were identified as creating barriers to criticality. It was pointed out that it can be hard to differentiate between "what we know and what we can release". This was felt to be a more serious issue in certain sectors, for example, as one participant said, the "government is not a simple entity, it does not completely share knowledge internally". One possible solution to this could be, "separating data to enable working more collaboratively. Data that can be shared and that which can't". Participants recommended releasing more useful and relevant information in order to be critically collaborative. However it is felt that there are poor models for sharing information and issues with trust and sharing data.

Funding issues were also mentioned as a barrier to criticality. Participants felt that "pots of funding are too big" which "shuts out smaller organisations". Additionally the way in which funding seems to be allocated was identified as a barrier to criticality too, in that new and innovative ideas are prevented from being progressed, as funders tend to prioritise an applicant's track record over an innovative and important new idea. Moreover it was argued that specific funding calls targeting certain areas mean we are only "studying small parts of the problem", rather than the wider context.

Participants also pointed out that funding application processes are prohibitively slow. Currently, by the time a funding application has been written and submitted, funds granted and the research conducted, the field may have moved on. There are similar issues with publications- the

publication process is slow, and by the time an article gets published and is available to read, the field may have moved on.

A further barrier to criticality of both kinds was the lack of opportunity for learning across the field. A lack of opportunity for learning across sectors was seen to present a major barrier, including, for example, a lack of secondment opportunities between practitioners and academics. For those managing emergencies, a lack of proactive planning, resources and people were seen as preventing the potential for learning within communities affected by emergencies. Practitioners suggested that the creation of multiagency teams could potentially foster collaborative criticality.

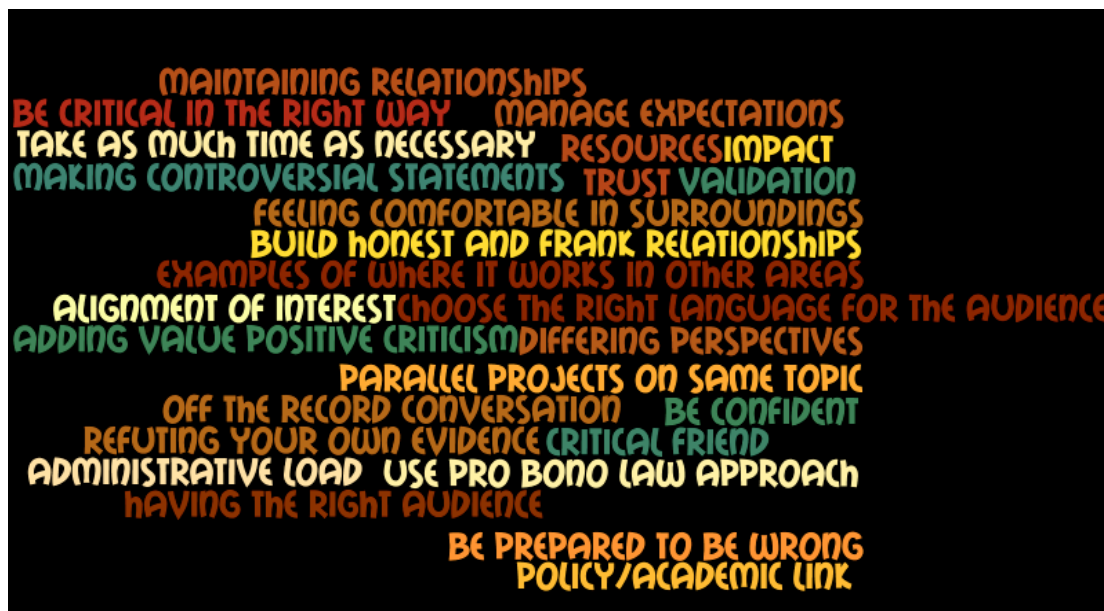


Figure 3: This shows the main points discussed as to how to work critically in this field.

In order to foster criticality in the field, participants felt that changes are necessary across all sectors. A space should be created in which “controversial statements”, “differing perspectives”, “off the record conversations” are welcome, a more open and explorative environment in which individuals can be “prepared to be wrong”, and where they felt able to “refute their own evidence”, and also in which critique is supported as positive and adding value. It was felt that such an environment could potentially be created through the building and maintenance of relationships of trust in which individuals felt they could be honest and frank.

How can interdisciplinary work best be fostered in the UK?



Figure 4: Participants were asked to discuss and list the ways in which we can foster interdisciplinary work in the field and this shows the main points discussed.

Participants suggested several ways of fostering interdisciplinary working. Firstly, the funding model could be improved in that there could be joint funding resources targeted at multidisciplinary groups.

Secondly, there is a need for more networking and collaborative events, including sandpits and sandcastles, with sandcastles seen as more beneficial to interdisciplinary working as sandpits are traditionally competitive events and may therefore lack interdisciplinary impact, and sandcastles are collaborative in nature. This would enable academics, policy makers and practitioners to “ask the right people” the right questions in order to obtain the “right answers”. There is a real sense that organisations should work together more and such events would provide one way of achieving that. It was argued that working more closely together would enable a response to events in real time if those networks and connections were already fostered.

Moving forward: Developing ways of improving collaboration in the field: Recommendations and solutions.

The group identified three values, or approaches, needed to achieve their vision of improved collaborative work in this field. These were learning, a positive attitude and respect.



Figure 5: This shows the values needed to achieve the vision of working collaboratively in the field.

In order to facilitate the overall vision of working collaboratively, the group identified a number of secondary approaches:

- A shared goal from the outset, and collaboration at every level.
- A culture of learning and an equality of sectors.
- A 1 day practice/academic summit focusing on shared goals and the nature of collaboration.
- Strategic research centres combining both practice and academic approaches.
- Involvement of the public in research and planning.
- A virtual knowledge hub, a discussion forum, an applied journal and an accessible research library devoted to the study of critical infrastructure protection and mass population response.

In order to achieve the overall vision of collaborative working some 'bold steps' were identified:

National forum for resilience bringing practitioners and researchers together
 Exchange scheme with emergency planning college
 Universities need to work actively towards more outreach work with local communities
 Supportive secondment system for academics researchers in policy/business/third sector
 Annual prize for best resilience-related creative public communications
 Data sharing
 Strategic research centre for resilience
 Put in job description
 More collaborative events
 CPD in this area
 Be excellent
 Clear terms at least discussion
 Clear priorities
 Action research to maintain relationship at every level
 Be assertive
 Standardisation

Figure 6: This shows the main points discussed as being the 'bold steps' needed to achieve the vision of working collaboratively in the field. The points are listed in order of importance as ranked by the participants.

The '5 Bold Steps' that were identified as being the most important (by way of vote) were:

Put in job description
 Supportive secondment system for academics researchers in policy/business/third sector
 Data sharing
National forum for resilience bringing practitioners and researchers together
 Exchange scheme with emergency planning college

Figure 7: This shows the '5 bold steps' (the main steps) needed to achieve the vision of working collaboratively in the field. The larger the font, the more important the point is considered to be (by participants ranking).

1. The creation of a national forum for resilience bringing practitioners and researchers together.
2. An exchange scheme between universities and the Emergency Planning College.
3. Improved data sharing.

4. The creation of a supportive secondment system for researchers between sectors, including policy, business, academia and the third sector.
5. Put working collaboratively in job descriptions.

Challenges

The group also identified the following challenges, which would need to be addressed for us to achieve this vision of collaborative working:

- Data needs to be interpretable and digestible to non-specialists and careful consideration needs to be given to levels of protection and how to decide what to communicate to the public.
- Consideration will need to be given to the classic trade-off between providing security information versus spreading fear.
- The existence of tensions between the public and private sector.
- The “increased inequalities exacerbated by government cuts and neoliberal policies” which will affect resources.
- Lack of support from universities, including lack of incentives, time, funding for developing partnerships and grants and for attendance at interdisciplinary conferences, and the current inadequate exploitation of existing research.
- The “withdrawal of support for infrastructure projects” from external funders.

Support

In order to overcome some of these challenges, participants identified the following areas in which support is needed. These included:

- Funding and opportunities for more collaborative events in order to build relationships and trust as well as individuals who fully “invest in the process” and networks which are sustainable.
- More calls for collaborative funding such as “industry events which call for academic collaboration”.

- Research funding for master's and PhD students tied to ongoing areas of research identified by existing experts.
- A “value for learning and training so that the underlying skills benefit the workplace”.

Sandcastle Impact

Networking

An obvious element of impact of an event like the sandcastle event is the opportunity that it brings for delegates to network. Indeed, all of the delegates identified networking as being a major impact of the sandcastle for them. For many the opportunity to be in such a group, consisting of academics, policy makers and practitioners was something that was important and valuable:

“I think it is the first time I have talked at length to practitioners. I was a bit taken aback by how much the practitioners value learning and the educational experience. I think that this really highlighted to me the importance of intangible benefits afforded by collaborations between academics and practitioners.”

For others it was the opportunity to broaden their contacts in the academic field and to make contacts that will impact on their research activity in the future. There was an increased desire as a result of the sandcastle, to collaborate in the field and it was felt by some that the event allowed the development of clear working relationships and relationship building. This included developing greater understanding of work in the area and of contacts themselves as well as learning from each other:

“The essence of collaboration is shared understanding!”

The networking opportunity that the sandcastle event provided enabled new perspectives and views to emerge and for a level of shared learning to take place. Additionally it facilitated an increased visibility of research in the field:

“Increased visibility for the Global Uncertainties Programme, helping deliver my mission as G.U. Champion”

And allowed some delegates to gain:

“knowledge about the Global Uncertainties programme, ”

which they might not have had before.

New perspectives & learning

Delegates benefitted from listening to new views and perspectives on a joint area of interest and enjoyed brainstorming ideas together and learning from each other. For some it allowed them to consider different aspects in their future work, thus potentially widening the scope of the field:

“Great to hear from other areas surrounding Critical Infrastructure resilience. Will consider other social impacts in future work.”

For others it provided insights into different areas and expertise and enabled them to have a greater understanding of each other’s needs, to enable them to work collaboratively. Many delegates highlighted the presentations (by John Preston, Charlotte Chadderton, Kaori Kitagawa, Tristram Riley-Smith and Matthew Hogan) as being of interest and areas they learnt from, others identified that there were imaginative and interesting ideas throughout the day and that they had gained:

“a lot of new knowledge influencing research.”

The Sandcastle event thus achieved what it set out to achieve: bringing academics, policy makers and practitioners together to collectively work on a shared problem. Following on from this event there will be a second event later in the year where the same group get together to work on a table top exercise.